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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,841	10/16/2003	Robert W. Lamberton	169.12-0613	8492
164	7590	08/22/2005	EXAMINER	
KINNEY & LANGE, P.A. THE KINNEY & LANGE BUILDING 312 SOUTH THIRD STREET MINNEAPOLIS, MN 55415-1002			BERNATZ, KEVIN M	
		ART UNIT		PAPER NUMBER
		1773		

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/686,841	LAMBERTON ET AL.
	Examiner	Art Unit
	Kevin M. Bernatz	1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All. b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: ____.                                    |

## DETAILED ACTION

### ***Response to Amendment***

1. Amendments to the specification and claims 1 – 16 and 19 - 23, filed on June 7, 2005, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Examiner's Comments***

3. Regarding the limitation(s) “nanoclusters” and “nanoclusters containing approximately 200 to 800 atoms per nanocluster” in claims 1 - 23, the Examiner has given the term(s) the broadest reasonable interpretation(s) consistent with the written description in applicants’ specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, the Examiner notes that applicants’ specification refers to nanoclusters as clusters of atoms on a nano length scale, approximately 1 – 5 nm in size and between 4 and 5000 atoms (page 7, lines 6 – 29). The Examiner notes that the prior art teaches that single crystal grains of the order of 1 – 100 nm are recognized as nanoclusters of  $100 - 10^8$  atoms (Ando et al., U.S. Patent NO. 6,802,753 B1 – col. 46, lines 30 – 58). As such, the Examiner has interpreted

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"nanoclusters" to refer to any nanometer scale (<100 nm) crystal grain or particle and/or a crystal grain or particle recited as comprising between 4 and  $10^8$  atoms.

***Oath/Declaration***

4. The new Oath/Declaration filed May 17, 2005 is accepted.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner notes that while the specification is enabling for a first magnetic layer incorporating nanoclusters *and* having a magnetic saturation moment of greater than 2.4 T, the specification does not appear to be enabling for a first magnetic layer incorporating *nanoclusters having a magnetic saturation moment of 2.4 T*. The Examiner notes that this appears to be a typographical error (see the limitations directed to the second magnetic layer) and for the purposes of evaluating the prior art, the Examiner has interpreted the claim as reciting that the first

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magnetic layer incorporates nanoclusters *and the first magnetic layer has a magnetic saturation moment of greater than 2.4 T.*

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1 – 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. (IEEE Trans. Mag., 36, 5, 2000, 2506 – 2508) as evidenced by Ando et al. ('753 B1) and Kong et al. (Mag. Conf., 2002, INTERMAG Europe 2002, Digest Papers).

Regarding claims 1 and 2, Sun et al. disclose a magnetic element comprising at least one layer of a nanophase magnetic material incorporating nanoclusters and having a magnetic saturation moment of greater than 2.4 T (*entire disclosure thereof*).

Regarding the limitation “nanocluster” and “containing approximately 200 to 800 atoms”, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or

obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prime facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that Sun et al. disclose explicit embodiments having a magnetic saturation moment ( $4\pi M_s$ ) of greater than 2.4 T (24 kG). Given the extreme difficulty in obtaining such a high magnetic saturation magnetic moment, the Examiner deems that there is sufficient basis for a position that these materials are inherently “nanoclusters” and “nanoclusters containing approximately 200 to 800 atoms”. Furthermore, the Examiner notes that since the disclosed materials are taught to have small grains at the preferred nitrogen amounts exhibiting the high magnetic saturation moment, these layers would appear to be “nanoclusters” as recognized by the prior art (as evidenced by Ando et al., col. 46, lines 30 – 58).

Therefore, in addition to the above disclosed limitations, the presently claimed properties of “nanoclusters” and “containing approximately 200 to 800 atoms” would have inherently been present because the prior art products possess a relatively unique

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property (i.e. a magnetic saturation moment > 2.4 T) that would appear to result from the material having a substantially identical microstructure as applicants' claimed structure.

Regarding claims 3 - 5, Sun et al. disclose nanocluster materials meeting applicants' claimed limitations. Regarding the limitation(s) "coated in flight with a magnetic material selected from the group ... and alloys thereof", the Examiner notes that this limitation(s) are/(is a) process limitation(s) and is/are not further limiting in terms of the structure resulting from the claimed process, except as noted below. Specifically, in a product claim, as long as the prior art product meets the claimed structural limitations, the method by which the product is formed is not germane to the determination of patentability of the product unless an unobvious difference can be shown to result from the claimed process limitations. In the instant case, the structure resulting from the claimed process is deemed to be a nanocluster comprising at least two types of magnetic materials. Sun et al. disclose the nanoclusters as comprising both Fe and Co, hence meeting the requirement of possessing at least 2 magnetic metal materials meeting the claimed Markush limitations. Similarly, the limitation "adsorbed with an electron-donating material ... and nitrogen" is a process limitation which merely requires that hydrogen and/or nitrogen is present in the final product.

Regarding claims 6 – 11, Sun et al. disclose nano-laminations of NiFe on either side of a nanoscale (100 nm) FeCoN film, hence reading on the claimed structural limitations. The Examiner notes "vacuum-deposited" is a process limitation that is not further limiting in so far as the structure of the final product is concerned.

Regarding claims 12 and 13, these limitations are intended use limitation(s) and are not further limiting in so far as the structure of the product is concerned. Note that "in apparatus, article, and composition claims, intended use must result in a **structural difference** between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. **If the prior art structure is capable of performing the intended use, then it meets the claim.** In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art." [emphasis added] *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). See MPEP § 2111.02. In the instant case, Sun et al. disclose using the nanophase material as part of a write pole and the Examiner notes that nanophase soft magnetic alloys are clearly capable of meeting the use as a SUL (soft underlayer), as evidenced by Kong et al. (*Abstract*).

9. Claims 1 – 4, 6 – 17 and 19 - 23 are rejected under 35 U.S.C. 102(a) and/or (e) as being anticipated by Minor et al. (U.S. Patent App. No. 2003/0133224 A1) as evidenced by Ando et al. ('753 B1).

Regarding claims 1 and 2, Minor et al. disclose a magnetic element comprising at least one layer of a magnetic material having a magnetic saturation moment of greater than 2.4 T (*Figure 6*).

Regarding the limitation "nanocluster", "incorporating nanoclusters" and "containing approximately 200 to 800 atoms", it has been held that where claimed and

prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that Minor et al. disclose explicit embodiments having a magnetic saturation moment ( $4\pi M_s$ ) of greater than 2.4 T. Given the extreme difficulty in obtaining such a high magnetic saturation magnetic moment, the Examiner deems that there is sufficient basis for a position that these materials are inherently "nanoclusters" and "nanoclusters containing approximately 200 to 800 atoms", especially the embodiments disclosed in Figure 6 meeting the claimed magnetic saturation moment limitations. Furthermore, the Examiner notes that since the disclosed layers are 0.1 – 4 nm and 0.1 – 2 nm in thickness for the Fe and Co layers, respectively, these layers (even if single crystals) would appear to be "nanoclusters" as recognized by the prior art (as evidenced by Ando et al., col. 46, lines 30 – 58).

Therefore, in addition to the above disclosed limitations, the presently claimed properties of "nanoclusters" and "containing approximately 200 to 800 atoms" would have inherently been present because the prior art products possess a relatively unique property (i.e. a magnetic saturation moment > 2.4 T) that would appear to result from the material having a substantially identical microstructure as applicants' claimed structure.

Regarding claims 3 and 4, Minor et al. disclose nanocluster materials meeting applicants' claimed limitations. Regarding the limitation(s) "coated in flight with a magnetic material selected from the group ... and alloys thereof", the Examiner notes that this limitation(s) are/(is a) process limitation(s) and is/are not further limiting in terms of the structure resulting from the claimed process, except as noted below. Specifically, in a product claim, as long as the prior art product meets the claimed structural limitations, the method by which the product is formed is not germane to the determination of patentability of the product unless an unobvious difference can be shown to result from the claimed process limitations. In the instant case, the structure resulting from the claimed process is deemed to be a nanocluster comprising at least two types of magnetic materials. Minor et al. disclose the nanoclusters as comprising both Fe and Co, hence meeting the requirement of possessing at least 2 magnetic metal materials meeting the claimed Markush limitations.

Regarding claims 6 – 11, Minor et al. disclose nano-laminations of Fe and Co (Paragraph 0023) meeting applicants' claimed material and structural limitations. The

Examiner notes “vacuum-deposited” is a process limitation that is not further limiting in so far as the structure of the final product is concerned.

Regarding claims 12 and 13, Minor et al. disclose the claimed limitations (*Paragraphs 0002 – 0007*).

Regarding claims 14 – 17 and 19 - 23, Minor et al. disclose the claimed structure of the magnetic write element (*Figures and Paragraphs 0019 – 0027*).

10. Claims 1 - 23 are rejected under 35 U.S.C. 102(b) as being anticipated by, ***or in the alternative*** under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (U.S. Patent No. 6,132,892) in view of Sun et al. (IEEE Trans. Mag., 36, 5, 2000, 2506 – 2508) and Rawlings et al. (U.S. Patent No. 4,933,026). In either case, the above are evidenced by Ando et al. ('753 B1) and Kong et al. ((Mag. Conf., 2002, INTERMAG Europe 2002, Digest Papers)).

Regarding claims 1 and 2, Yoshikawa et al. disclose a magnetic element comprising at least one layer of a magnetic material having a high magnetic saturation moment (*Figure 1A and col. 7, lines 62 - 65*).

While Yoshikawa et al. does not explicitly disclose an embodiment having a magnetic saturation moment *greater* than 2.4 T, the Examiner notes that Yoshikawa et al. clearly teach the desire for maximizing the magnetic saturation moment as well as embodiments having a value of 2.4 T (*Table 5, example 3*). As such, the Examiner deems there is sufficient specificity that the disclosed property limitation is disclosed by

Yoshikawa et al., even though an explicit embodiment meeting the claimed limitation is not presented.

However, even in the event that one deems that Yoshikawa et al. does not provide sufficient specificity to anticipate the claimed property, the Examiner notes that Sun et al. and Rawlings et al. provides sufficient guidance to one of ordinary skill to optimize the elemental compositions to produce alloys reading on the claimed property limitation as well as being within the disclosed scope of the Yoshikawa et al. invention (*especially in view of the teaching regarding adding N, Nb or Ta to the allows of Yoshikawa et al. – col. 7, lines 3 – 18*).

Regarding the limitation “nanocluster”, “incorporating nanoclusters” and “containing approximately 200 to 800 atoms”, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the

prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that Yoshikawa et al. disclose crystal grains having a diameter of 50 nm or less (col. 7, lines 62 – 65), which falls within the range that one of ordinary skill in the art would recognize as a "nanocluster" material (as evidenced by Ando et al., col. 46, lines 30 – 58). Furthermore, the Examiner notes that the number of atoms is directly related to the grain size (more atoms = larger grain) and Ando et al. provides evidence that the number of atoms in grains disclosed by Yoshikawa et al. overlap applicants' claimed number of atoms.

Therefore, in addition to the above disclosed limitations, the presently claimed properties of "nanoclusters" and "containing approximately 200 to 800 atoms" would have inherently been present because the prior art products possess a substantially identical structure and grain size as what the prior art recognizes as meeting the disclosed limitations.

*Furthermore, in the event that the disclosed limitation of "nanoclusters" and "containing approximately 200 to 800 atoms" are not inherently met, the above limitations would have still be obvious in view of the knowledge in the prior art that the number of atoms is directly related to the grain size, and the grain size (and hence, number of atoms) directly impacts the soft magnetic properties of the alloy (Yoshikawa et al., col. 7, line 62 bridging col. 8, line 11).*

Regarding claims 3 - 5, Yoshikawa et al. disclose nanocluster materials meeting applicants' claimed limitations. Regarding the limitation(s) "coated in flight with a

magnetic material selected from the group ... and alloys thereof", the Examiner notes that this limitation(s) are/(is a) process limitation(s) and is/are not further limiting in terms of the structure resulting from the claimed process, except as noted below. Specifically, in a product claim, as long as the prior art product meets the claimed structural limitations, the method by which the product is formed is not germane to the determination of patentability of the product unless an unobvious difference can be shown to result from the claimed process limitations. In the instant case, the structure resulting from the claimed process is deemed to be a nanocluster comprising at least two types of magnetic materials. Yoshikawa et al. disclose both that the individual grains comprise multiple magnetic materials, as well as the grains comprising a crystalline magnetic phase surrounded by an additional magnetic amorphous or different crystallinity phase (*Abstract*), hence meeting the requirement of possessing at least 2 magnetic metal materials meeting the claimed Markush limitations. Similarly, the limitation "adsorbed with an electron-donating material ... and nitrogen" is a process limitations which merely requires that hydrogen and/or nitrogen is present in the final product, which is disclosed by Yoshikawa et al. (col. 7, lines 3 – 10).

Regarding claims 6 – 11, Yoshikawa et al. disclose a magnetic head comprising a permalloy (NiFe) layer above and below a high magnetic saturation moment nano-laminations, hence meeting applicants' claimed material and structural limitations (col. 16, lines 1 – 36). The Examiner notes "vacuum-deposited" is a process limitation that is not further limiting in so far as the structure of the final product is concerned.

Regarding claims 12 and 13, these limitations are intended use limitation(s) and are not further limiting in so far as the structure of the product is concerned. Note that "in apparatus, article, and composition claims, intended use must result in a **structural difference** between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. **If the prior art structure is capable of performing the intended use, then it meets the claim.** In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art." [emphasis added] *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). See MPEP § 2111.02. In the instant case, Yoshikawa et al. disclose using the nanophase material as part of a write pole and the Examiner notes that nanophase soft magnetic alloys are clearly capable of meeting the use as a SUL (soft underlayer), as evidenced by Kong et al. (*Abstract*).

Regarding claims 14 - 23, Yoshikawa et al. disclose the claimed structure of the magnetic write element (*Figures and col. 16, lines 1 - 36.*).

### ***Claim Rejections - 35 USC § 103***

11. Claims 14 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al., as evidenced by Ando et al. and Kong et al. as applied above, and further in view of Yoshikawa et al. ('892).

Sun et al., Ando et al. and Kong et al. are relied upon as described above.

None of the above disclose a magnetic write element meeting applicants' claimed structural limitations, though Sun et al. teach using the disclosed material as a write pole for a magnetic head.

However, Yoshikawa et al. teach a magnetic write element using a high magnetic saturation moment alloy as the write pole tips (i.e. the alloy of Sun et al.), wherein the use of such a structure results in a magnetic head capable of achieving excellent recording and overwrite properties (*col. 16, line 1 bridging col. 17, line 17*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant(s) invention to modify the device of Sun et al., as evidenced by Ando et al. and Kong et al., to include a structure meeting applicants' claimed limitations as taught by Yoshikawa et al., since such a structure results in a magnetic head capable of achieving excellent recording and overwrite properties.

Regarding claims 15 - 23, Sun et al. disclose the claimed limitations as described above with regard to claims 2 – 14.

### ***Response to Arguments***

#### **12. The prior rejection of claims 1 - 23 under 35 U.S.C § 102 and/or 103 – various references**

Applicant(s) arguments have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Several references disclose high magnetic saturation moment materials, though obtaining a value above 2.4 T appears to be limited to a relatively narrow number of embodiments. See Cooper et al. (U.S. Patent App. No. 2003/0209295 A1), Komuro et al. (J. Appl. Phys., 67(9), 1990, 5126 – 5130), Pan et al. (IEEE Trans. Mag., 37(4), 2001, 2284 – 2287). Yu et al. (IEEE Trans. Mag., 38(5), 2002, 3030 – 3032), and Katada et al. (IEEE Trans. Mag., 38(5), 2002, 2225 – 2227). Hass et al. (U.S. Patent App. No. 2005/0000444 A1) teach that forming nanocomposites by vapor deposition of multiple layers (e.g.  $\{ \text{NiAl}/\text{Al}_2\text{O}_3 \}_n$ ) is known in the art (Paragraphs 0075 – 0077).

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

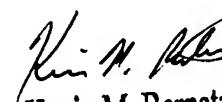
Applicants' amendment resulted in embodiments not previously considered (i.e. "at least one layer of a nanophase magnetic material incorporating nanoclusters and having a magnetic saturation moment of greater than 2.4 T") which necessitated the new grounds of rejection, and hence the finality of this action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
August 15, 2005



Kevin M. Bernatz, PhD  
Primary Examiner